

Page 31, after line 20, insert:

-- While specific embodiments of the invention have been shown and described in detail to illustrate the application of the principles of the invention, it will be understood that the invention may be embodied otherwise without departing from such principles. --

IN THE CLAIMS:

Please cancel claims 1- 39 without prejudice and replace them with the following new claims:

40. A process for the contacting of a wire conductor in the course of the manufacture of a transponder unit arranged on a substrate and including a wire coil and a chip unit, the process comprising the steps of:

a first phase in which the wire conductor is guided away via a terminal area or a region accepting the terminal area and is fixed on the substrate relative to the terminal area or the region assigned to the terminal area; and

a second phase in which the connection of the wire conductor to the terminal area is effected with a connecting instrument.

41. The process according to claim 40, wherein an ultrasonic instrument is used as the connecting instrument for the purpose of connecting the wire conductor to the

terminal area.

~~3~~ 42. The process according to claim ~~40~~, wherein an ultrasonic instrument is used both as the connecting instrument for the purpose of connecting the wire conductor to the terminal area and for the purpose of arranging the wire coil on the substrate.

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~~4~~ 43. The process according to claim ~~40~~, wherein the arrangement of the wire coil on the substrate of the wire conductor is effected by means of a wiring device taking the form of an ultrasonic instrument in such a way that the wire conductor is subjected to the action of ultrasound in a direction transverse to the wiring plane and the transverse movement of the wiring device generated by the ultrasonic loading is superimposed on the wiring movement extending in the wiring plane.

~~5~~ 44. The process according to claims ~~40~~, wherein the transverse movement takes place along a transverse-movement axis that is variable as regards its angle in relation to the axis of the wiring movement.

~~46~~ 45. The process according to claim ~~43~~, wherein the ultrasonic frequency and/or the angle between the axis of the wiring movement and the transverse movement axis is varied as a function of the desired depth of penetration of the wire conductor.

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46. The process according to claim ~~46~~¹, further comprising guiding away, via a substrate recess, a final coil region and an initial coil region of a coil which is formed on the substrate by the wiring.

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47. The process according to claim ~~46~~², wherein ultrasonic loading of the wire conductor is interrupted in the region of the substrate recess.

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48. The process according to claim ~~48~~⁴, for the purpose of crossing a wire section that has already been wired the ultrasonic loading of the wire conductor is interrupted in the crossing region and the wire conductor is guided in a crossing plane that is spaced in relation to the wiring plane.

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49. The process according to claim ~~49~~¹, wherein the chip unit is connected to the coil, whereby in a wiring phase the coil having an initial coil region and a final coil region is formed on the substrate by means of a wiring device and in a subsequent connection phase a connection is implemented between the initial coil region and the final coil region to terminal areas of the chip unit by means of a connecting device.

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50. The process according to claim ~~50~~¹⁰, wherein the substrate consists of a fleece-type material, including one of paper or cardboard, and the connection which is made in the course of the wiring is effected by means of a layer of adhesive disposed

between the wire conductor and a surface of the substrate.

~~12~~ 11. The process according to claim ~~10~~, wherein the connection of the initial coil region and of the final coil region to the terminal areas of the chip unit is effected by means of a thermocompression process.

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~~13~~ 12. The process according to claims ~~10~~, wherein a manufacture of a plurality of card modules takes place simultaneously in such a way that in a supply phase a plurality of substrates combine to form a yield and are supplied to a production device comprising a plurality of wiring devices and connecting devices, subsequently in the wiring phase a plurality of coils are formed simultaneously on substrates arranged in a row, then in the connection phase a plurality of chip units are connected via their terminal areas to the coils, and finally in a separation phase a separation of the card modules from the composite yield takes place.

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~~14~~ 13. The process according to claim 40, wherein a rotationally symmetrical coil is formed with a wire conductor wired on a substrate taking the form of a winding support and rotating relative to ^{nat} ~~the~~ wiring device.

~~15~~ 14. The process according to claim ~~53~~, further comprising providing a vibrating diaphragm wherein the rotationally symmetrical coil is provided for the manufacture

of a moving coil of a loudspeaker unit which is integrally connected to the vibrating diaphragm.

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~~55.~~ ¹⁶ The process according to claims ~~40~~ ¹, wherein a number of wiring devices corresponding to the number of cable conductors desired are arranged transverse to the longitudinal axis of a ribbon-shaped substrate and a relative movement between the substrate and the wiring devices takes place in the direction of the longitudinal axis of the substrate.

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~~56.~~ ^{nab} The process according to claim 40, further comprising a preparatory treatment of the aluminum surface of the terminal area prior to the connection of the wire conductor to the terminal area.

BD 7
~~57.~~ The process according to claim 56, wherein with a view to preparatory treatment a mechanical elimination of an oxide layer disposed on ^{nab} the aluminum surface is effected by subjecting the terminal area to the action of an ultrasonic instrument.

~~58.~~ The process according to claim 56, wherein with a view to preparatory treatment the aluminum surface is subjected to a cleansing process.

~~59.~~ The process according to claim 58, wherein the cleansing process includes

at least one of a dry-etching process, a wet-etching process or a laser treatment of the aluminum surface.

²¹
~~50~~. The process according to claim ~~50~~¹⁹, with a view to preparatory treatment the aluminum surface is provided with a multilayered contact metallization having a zincate layer which is applied by way of intermediate layer onto the aluminum face and having an interconnect layer which is provided for the contacting with the wire conductor.

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~~51~~. The process according to claim ~~50~~²¹, wherein the interconnect layer takes the form of a layer comprising one of nickel or palladium.

²³
~~52~~. The process according to claim, wherein a vibrational loading of the wire conductor brought about by ultrasound takes place in a plane substantially parallel to the terminal area and transverse to the longitudinal axis of the wire conductor.

²⁴
~~53~~. The process according to claim ~~52~~²³, wherein a vibrational loading of the wire conductor brought about by ultrasound serves for regional removal of a wire-conductor insulation.

²⁵
~~54~~. The process according to claim ~~40~~¹, wherein a fixation of the wire conductor is effected on a plastic support sheet which together with the wire conductor and the

chip forms a card inlet for the manufacture of a chip card.

²⁵
~~63~~. The process according to claim ~~64~~, wherein a fixation of the wire conductor on the plastic support sheet and the connection of the wire conductor to the terminal areas of the chip serves to form a mechanical suspension of the chip on the plastic support sheet.

²⁷
~~66~~. The process according to claim ~~40~~, the fixation of the wire conductor is effected by wiring with a wiring device comprising an ultrasonic instrument.

²⁸
~~67~~. The process according to claim ~~64~~, wherein the ultrasonic instrument for the wiring of the wire conductor on the support sheet brings about a vibrational loading of the wire conductor transverse to the longitudinal axis of the wire conductor and transverse to the surface of the support sheet, and the ultrasonic instrument for the connection of the wire conductor to the terminal area brings about a vibrational loading of the wire conductor in a plane substantially parallel to the support sheet and transverse to the longitudinal axis of the wire conductor.

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68. A device for contacting of a wire conductor in the course of the manufacture of a transponder unit arranged on a substrate and including a wire coil and a chip unit, the process including the steps of a first phase in which the wire

5 conductor is guided away via a terminal area or a region accepting the terminal area and is fixed on the substrate relative to the terminal area or the region assigned to the terminal area and a second phase in which the connection of the wire conductor to the terminal area is effected with a connecting instrument, the device comprising:

a wire guide; and

10 an ultrasonic generator, the ultrasonic generator being connected to the wire guide in such a way that the wire guide is stimulated to execute ultrasonic vibrations in the direction of the longitudinal axis.

69. The device according to claim 29, wherein the wire guide includes a vibrating punch partially encompassing the cross-section of the wire of the wire conductor and the ultrasonic generator includes an ultrasonic oscillator which brings about a vibrational loading of the vibrating punch transverse to the longitudinal axis of the wire conductor which is guided in a profiled end of the vibrating punch.

70. The device according to claim 69, wherein the ultrasonic instrument is coupled to a wiring instrument.

71. The device according to claim 69, wherein the ultrasonic oscillator of the ultrasonic instrument serves simultaneously for ultrasonic loading of the wiring instrument.

72. The device according to claim 71, wherein the ultrasonic oscillator is arranged in such a way that the axis of its effective direction is variable.

73. A device for the wiring of a wire shaped conductor arranged on a substrate and including a wire coil and a chip unit, the process including the steps of a first phase in which the wire conductor is guided away via a terminal area or a region accepting the terminal area and is fixed on the substrate relative to the terminal area or the region assigned to the terminal area and a second phase in which the connection of the wire conductor to the terminal area is effected with a connecting instrument, the device comprising:

an ultrasonic generator and a wire guide arranged next to a vibrating punch and coupled to the ultrasonic generator for subjecting the wire conductor to the action of mechanical vibrations induced by ultrasound and acting in the longitudinal direction of the vibrating punch.

74. The device according to claim 73, further comprising: a pivotal axis coaxial with a vibrating-punch axis.

75. The device according to claim 74, wherein the wire guide comprises a wire-guidance capillary which at least in the region of a wire-guide nozzle extends in the wire guide parallel to the longitudinal axis.

76. The device according to claim 75, wherein the wire guide comprises, spaced from the wireguide nozzle, at least one wire-supply channel extending obliquely in relation to the longitudinal axis of the wire guide.

77. The device according to claim 76, wherein the ultrasonic generator is arranged coaxially with respect to the wire guide.

28. A process for contacting of a wire conductor arranged on a substrate and including a wire coil and a chip unit, the process comprising:

a first phase in which the wire conductor is guided away via a terminal area or a region accepting the terminal area and is fixed on the substrate relative to the terminal area or the region assigned to the terminal area;

a second phase in which the connection of the wire conductor to the terminal area is effected with a connecting instrument, the device comprising;

using a wire guide;

using an ultrasonic generator, the ultrasonic generator being connected to the wire guide in such a way that the wire guide is stimulated to execute ultrasonic vibrations in the direction of the longitudinal axis;

providing a yield supply station for supplying a plurality of substrates arranged in a yield;

providing a wiring station with a plurality of wiring devices arranged in a row

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